

Time for a paradigm shift in endoscopy

How the pandemic is inciting review of current practices

- Reassess the efficacy of cleaning and disinfection
- Impact on endoscopic procedures
- Consensus on international guidelines
- Take the single-use endoscopy lead with Ambu



Cleaning, disinfection and sterilisation

Current status

Physical cleanliness is achieved through washing, usually with water and/or detergent.

Cleaning prevents the spread of dirt and contaminants and reduces the bacterial burden.

Disinfection destroys pathogenic microorganisms and removes most organisms from surfaces.

For **sterilisation**, the heat sensitivity of the endoscope material should be taken into account, and only low temperature processes such as ethylene oxide [EO] or hydrogen peroxide (H_2O_2) can be used. Not all bronchoscopes can withstand sterilisation.

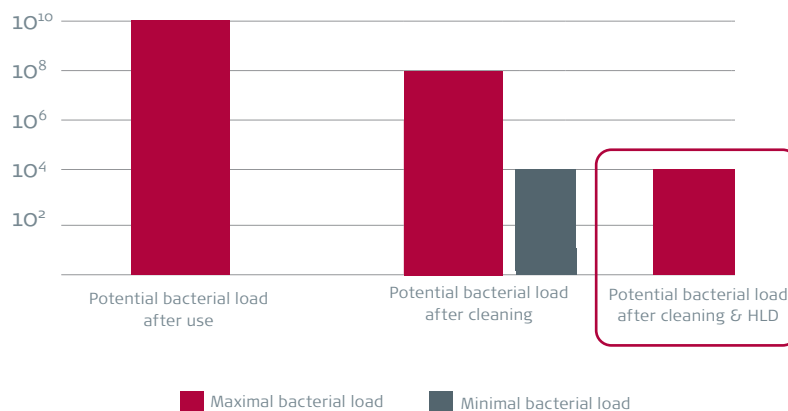
Flexible bronchoscopes are difficult to clean and disinfect due to their long and narrow working channel.

Despite following cleaning instructions, device contamination is persistently observed and failure to follow cleaning instructions meticulously is likely to lead to contaminated scopes.⁽¹⁾⁽²⁾

Cleaning and High Level Disinfection eliminates somewhere between 6 and 12 logs of microorganisms, but endoscopes can potentially contain a 10 log bioburden. Thus, even after cleaning and High Level Disinfection, scopes can potentially still have 4 logs or as many as 10,000 organisms left before the next patient use.⁽³⁾

Ofstead et al. 2018 substantiates this as they find 14 (58%) of 24 ready-to-use bronchoscopes contaminated by a diversity of microbial growth.⁽⁴⁾

- The majority of reusable bronchoscopes are NOT sterilised
- They are only High Level Disinfected (HLD). Sterilisation is a more comprehensive and costly process.
- Institutions cannot guarantee 100% cleaned, 100% sterilised scopes.



Contamination risks at patient and health care personnel level

In 2016, the Department for Health updated their guidance on decontaminating flexible endoscopes to improve the washing and cleaning process. The main objective of the recommendations is to continually improve the safety of and experience for patients, as well as the clinical effectiveness.⁽⁵⁾

Flow chart for endoscope reprocessing:



- Decontamination of reusable bronchoscopes is laborious, time-consuming and requires meticulous attention to detail.⁽⁶⁾
- Endoscope reprocessors must be compatible with the corresponding type of bronchoscope.⁽⁷⁾
- Procedures for manual cleaning and disinfection of bronchoscopes may not always be adhered to.
- Bronchoscopes must be inspected for surface damage and leak-tested after each procedure.⁽⁸⁾

Single-use bronchoscopes do not require disinfection, manual cleaning or leak testing

Single-use bronchoscopes do not require scope-compatible reprocessing equipment

Single-use bronchoscopes do not house an accumulation of biofilm

Learnings from the COVID-19 pandemic



The incubation time of COVID-19 is variable. The first observed symptoms may not be very specific, and the most serious observed forms affect people who are vulnerable due to their age or associated diseases.

Specific observational studies, such as the one carried out on passengers of the Diamond Princess cruise ship, have shown that the infection can be asymptomatic in 30-60% of infected subjects.

Even when avoiding bronchoscopy in patients with suspected or known COVID-19, bronchoscopy is required for use in therapeutic indications such as massive hemoptysis and severe airway stenosis.

As symptoms are not always visible, hospitals should take all the necessary measures to protect patients and health care personnel.

Studies have shown that the COVID-19 virus can survive for up to 72 hours on plastic and stainless steel, less than 4 hours on copper and less than 24 hours on cardboard.⁽⁹⁾



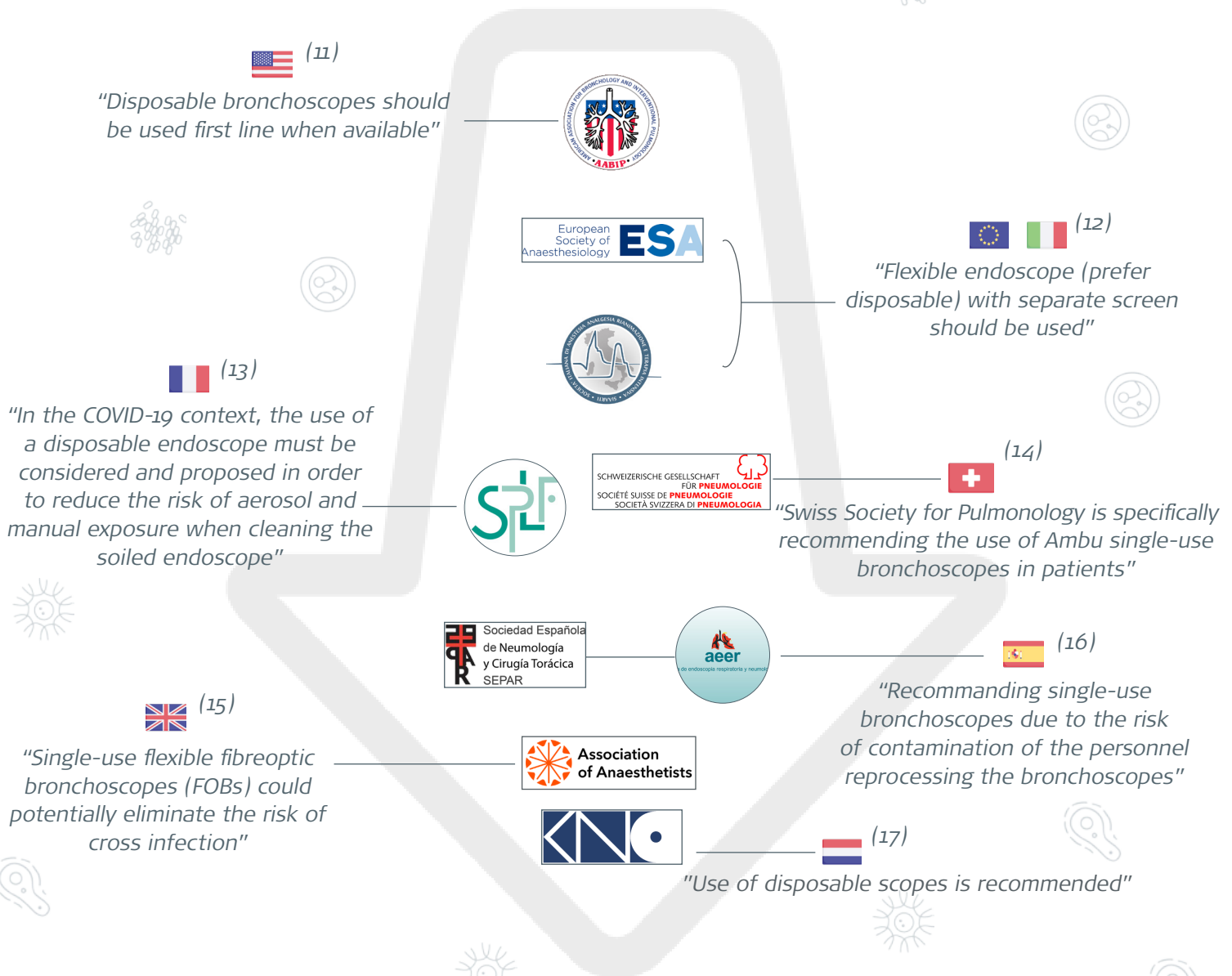
An article by Bloomberg stated that in Wuhan, Ear, Nose and Throat (ENT) and eye doctors were infected at higher rates than colleagues in the same hospitals. Du Bin, Director of the Intensive Care Unit at Peking Union Medical College Hospital, said, "My personal interpretation is these doctors have very close contact with the patients. That's the major reason why they got easily infected. It's important to get doctors educated and trained on how to protect themselves."⁽¹⁰⁾

COVID-19 is present in aerosols and droplets. Therefore it is of high importance to take the necessary measures to prevent contamination risks, like maintaining a physically safe distance between patients and clinicians.

International guidelines consensus

Multiple studies concerning the contamination of reusable endoscopes have been published, and pulmonology studies in particular continue to demonstrate higher than expected contamination rates. In addition, numerous reviews comparing single-use and reusable endoscopes have been published showing the benefits of single-use.

As a result of the COVID-19 pandemic, several societies have reviewed their recommendations and guidelines, and many have published new guidance recommending single-use bronchoscopes and Ambu products.



Use sterile single-use endoscopes whenever possible

Reusable endoscopes

A complex, costly and risky configuration



Risk of Cross-Contamination

Despite increased reprocessing requirements, cross-contamination remains a major issue.



Extensive Reprocessing Setup

100+ steps of cleaning, major surveillance and documentation burden.



Availability Issues

Procedure delay or even cancellation due to unavailable scopes.



High Cost-in-Use

High capital investment plus repair and reprocessing costs.



Complex Contracting

Complex and non-transparent contracts on scopes, repair and etc. binding the hospital.

versus single use endoscopes

Single use endoscopes

A simple and cost-effective configuration
eliminating risks infection

Eliminating Risk of Cross-Contamination

Sterile out of the pouch. Personal scope for each patient, that's never been in contact with other patients.



No Reprocessing

Scopes are discarded after use – no cleaning, documentation, surveillance or auditing on proper reprocessing.



No Availability Issues

No more “where is my scope?” Always a new scope at hand insuring a fully functional scopes for each patient.



Low Cost-in-Use

Minimal upfront investment. No cost for repair, reprocessing or added investment when guidelines change.



Transparent Contracting

Increased flexibility and simplicity for the hospital.



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Ambu® aScope™ – a unique, single-use solution

The single-use concept of Ambu aScope eliminates the risk of endoscope cross-contamination.

With Ambu aScope, there is always a 100% sterile scope at hand when needed.

Ambu aScope is a unique alternative to eliminate the disinfection process, which is laborious, time consuming and often not followed correctly.

With its low acquisition costs and no cleaning and repair costs, it is **an ideal solution for the OR, ER and ICU for both bronchoscopy and ENT procedures.**

For more information, please visit ambu.com

<https://www.ambu.co.uk/endoscopy/pulmonology>

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